

# Publications

## Kazunori Itakura

(April, 2004)

### Preprints

1. "Cronin Effect and High  $p_{\perp}$  Suppression in the Gluon Distribution at Small  $x$ ",  
(with E. Iancu, and D. Triantafyllopoulos), hep-ph/0403103, submitted to Nuclear Physics A.

### Publications in Refereed Journals (from old to new)

1. "Measurement of the Property of Cooled Lead Molybdate as a Scintillator"  
(with M. Minowa, S. Moriyama and W. Ohtani) Nuclear Instruments and Methods in Physics Research, A320 (1992) 500. (based on the results in undergraduate experimental course)
2. "Quantum Hamiltonian Reduction of the Schwinger Model"  
(with K. Ohta) Physical Review D50 (1994) 4145, [hep-th/9406195]  
(based on Master's thesis submitted to University of Tokyo)
3. "Boson Expansion Methods in 1+1-dimensional Light-Front QCD"  
Physical Review D54 (1996) 2853, [hep-th/9604032]
4. "Spontaneous Symmetry Breaking in Discretized Light-Cone Quantization"  
(with S. Maedan) Progress of Theoretical Physics 97 (1997) 635, [hep-th/9703107]
5. "Gap Equations from Fermionic Constraints on the Light Front"  
Progress of Theoretical Physics 98 (1997) 527, [hep-th/9706077]
6. "Classical Aspects of the 1+1 Dimensional Abelian Higgs Model on the Light Front"  
(with S. Maedan and M. Tachibana) Physics Letters B442 (1998) 217, [hep-th/9806221]
7. "Dynamical Chiral Symmetry Breaking on the Light Front. DLCQ Approach"  
(with S. Maedan) Physical Review D61 (2000) 045009, [hep-th/9907071]  
**Best research papers of the year in nuclear theory for young researchers (2000)** (from Nuclear Theory Group in Japan Physical Society)
8. "Validity of the Color Dipole Approximation for Diffractive Production of Heavy Quarkonium"  
(with K. Suzuki, A. Hayashigaki, J. Alam, and T. Hatsuda) Physical Review D62 (2000) 031501(R), [hep-ph/0005250]

9. “Dynamical Chiral Symmetry Breaking on the Light Front II. The Nambu-Jona-Lasinio Model”  
(with S. Maedan) Physical Review D62 (2000) 105016, [hep-ph/0004081]
10. “Light-Front Realization of Chiral Symmetry Breaking” **Invited Paper**  
(with S. Maedan) Progress of Theoretical Physics 105 (2001) 537, [hep-ph/0102330]
11. “Structural Change of Cooper Pairs and Momentum-dependent Gap in Color Superconductivity”  
(with H. Abuki and T. Hatsuda), Physical Review D65 (2002) 074014, [hep-ph/0109013]
12. “Geometric Scaling above the Saturation Scale”  
(with E. Iancu and L. McLerran) Nuclear Physics A 708 (2002) 327, [hep-ph/0203137]
13. “Froissart Bound from Gluon Saturation ”  
(with E. Ferreira, E. Iancu and L. McLerran) Nuclear Physics A 710 (2002) 373, [hep-ph/0206241]
14. “A Gaussian Effective Theory for Gluon Saturation ”  
(with E. Iancu and L. McLerran) Nuclear Physics A 724 (2003) 181, [hep-ph/0212123]
15. “Baryon Stopping and Valence Quark Distribution at Small  $x$  ”  
(with Y. Kovchegov, L. McLerran, and D. Teaney) Nuclear Physics A 730 (2004) 160, [hep-ph/0305332]
16. “Vector Mesons on the Light Front ”  
(with K. Naito and S. Maedan) Physics Letters B583 (2004) 87, [hep-ph/0308096]
17. “Saturation and BFKL Dynamics in the HERA Data at Small  $x$  ”  
(with E. Iancu and S. Munier) hep-ph/0310338, to appear in Physics Letters B.

## Conference Proceedings (from old to new)

1. “Correlation between Instantons and QCD-monopoles in the Abelian Gauge”  
(with H. Suganuma, H. Toki and O. Miyamura) [hep-ph/9512347]  
Proceedings of International Workshop on “Nonperturbative Approaches to QCD”  
at ECT\*, Trento, 10 - 29 July 1995. (Petersburg Nucl. Phys. Inst., 1995.)
2. “Dynamical Chiral Symmetry Breaking on the Light Front”  
Nuclear Physics A 663, 664 (2000) 1035c,  
Proceedings of “XV International Conference on Particles and Nuclei (PANIC99)”,  
Uppsala, Sweden.
3. “Dynamical Chiral Symmetry Breaking on the Light Front”  
Proceedings of TMU-Yale Symposium on Dynamics of Gauge Fields, December  
13-15, 1999, International House, Tokyo Metropolitan University, Tokyo.

4. "Effects of Topology on the Light Front "  
(with S. Maedan) Nuclear Physics A, Vol. 670 (1-4) (2000) 76  
Proceedings of the International Symposium on Physics of Hadrons and Nuclei,  
Tokyo, Japan, 14 December 1998
5. "Diffractive Physics in eRHIC"  
(with K. Suzuki, A. Hayashigaki, J. Alam, and T. Hatsuda)  
Proceedings of "Nuclear Theory Summer Meeting on eRHIC", Brookhaven National  
Laboratory, New York, USA, 26 June-14 July, 2000.
6. "Constraints on Color Dipole-nucleon Cross Section from Diffractive Heavy Quarkonium Production",  
(with K. Suzuki) Nuclear Physics B Proceedings Supplement 99 (2001) 230.  
Proceedings for "International Workshop on Diffraction in High-Energy and Nuclear  
Physics (DIFFRACTION2000)", Cetraro, Cosenza, Italy, 2-7 September 2000.
7. "Color Superconductivity in Dense QCD and Structure of Cooper Pairs",  
(with H. Abuki, and T. Hatsuda), hep-ph/0206043,  
Proceedings of the Joint CSSM/JHF Workshop on Physics at Japan Hadron Facility  
(Adelaide, March 14-21, 2002)
8. "Understanding Geometric Scaling at Small  $x$ "  
(with E. Iancu and L. McLerran) hep-ph/0205198,  
Proceedings of "XXXVIIth Rencontres de Moriond, QCD and High Energy Hadronic  
Interactions", Les Arcs, France, March 16-23, 2002.
9. "Structure Change of Cooper Pairs in Color Superconductivity – Crossover from  
BCS to BEC ? –"  
Nuclear Physics A715 (2003) 859c, [hep-ph/0209081],  
Proceedings of "the XVI International Conference on Ultrarelativistic Nucleus-  
Nucleus Collisions (Quark Matter 2002)", Nantes, France, 18-24 Jul 2002.
10. "Geometric Scaling in the Color Glass Condensate "  
(with E. Iancu and L. McLerran) Nuclear Physics A 721 (2003) 293c,  
Proceeding of "XVI International Conference on Particles and Nuclei (PANIC02)",  
Osaka, Japan, September 30-October 4, 2002.
11. "Light-Cone Wave Functions of Light Mesons from Light Front Quantization "  
(with K. Naito, and S. Maedan) Published in "Tokyo 2003, Hadron spectroscopy,  
chiral symmetry and relativistic description of bound systems" 88-91  
Proceedings of International Symposium on Hadron Spectroscopy, Chiral Symmetry  
and Relativistic Description of Bound Systems, Tokyo, Japan, 24-26 Feb 2003.
12. "Deep Inelastic Scattering in the Color Glass Formalism"  
hep-ph/0309127

Proceeding for 11th International Workshop on Deep Inelastic Scattering (DIS 2003), St. Petersburg, Russia, 23-27 Apr 2003.

13. “Color Glass Condensate and BFKL Dynamics in Deep Inelastic Scattering at Small  $x$ ”,  
hep-ph/0403257 (to be published in Journal of Physics G)  
Proceedings for “the XVII International Conference on Ultrarelativistic Nucleus-Nucleus Collisions (Quark Matter 2004)”, Oakland, CA USA, 11-17 Jan 2004.

### **Proceedings in domestic journals, annual reports (from old to new)**

1. “Boson Expansion Methods on Light Front”  
Soryuushiron Kenkyu 94 (1997) F37  
Proceedings of domestic workshop on “Recent Developments in QCD and Hadron Physics” in Yukawa Institute (January 1996) [written in Japanese]
2. “Light-Front Quantization –A Form of Dialectic Development–”  
Genshikaku Kenkyu 42 (1998) 115  
Proceedings of 1998 Summer School [written in Japanese]
3. “Light-Front Quantization and Its Application – Past, Present, and Near Future –”  
Published in JAERI-Conf 99-015  
Conference in Japan Atomic Energy Research Institute (JAERI) [written in Japanese]
4. “Gluon Saturation from Nonlinear Evolution Equation at Small  $x$ ”  
(with E. Iancu and L. McLerran) Soryuushiron Kenkyu 105 (2002) D45,  
Proceedings for domestic workshop “Basic problems in Quantum Field Theory and its application”, December 2001, Yukawa Institute for Theoretical Physics, Kyoto University, Japan.
5. Annual report for RIKEN
  - (a) “Light-Front Realization of the Chiral Symmetry Breaking”  
(with S. Maedan) RIKEN Accelerator Progress Report 34 (2001) 285
  - (b) “Gluon Saturation from Small- $x$  Evolution Equation”  
(with E. Iancu and L. McLerran) RIKEN Accelerator Progress Report 35 (2002) 191
  - (c) “Structural Change of Cooper Pairs in Color Superconductivity”  
(with H. Abuki and T. Hatsuda) RIKEN Accelerator Progress Report 35 (2002) 192
  - (d) “Geometric Scaling and Froissart Bound from Gluon Saturation”  
(with E. Ferreira, E. Iancu, and L. McLerran) RIKEN Accelerator Progress Report 36 (2003) 220.

### **Review articles in Japanese journals**

1. “The Color Glass Condensate – A Universal Picture of Hadrons and Nuclei at High Energy”, Butsuri, 59 (2004) 148.  
A review article published in JPS membership journal. Written in Japanese.

## **Books**

1. “Physics of Hadrons and QCD”, Published in Singapore by World Scientific (1999) 355 p, edited by H. Yabu, K. Itakura, T. Matsui, and M. Oka.  
Proceedings of the APCTP-RCNP Joint International School and YITP Workshop on the Physics of Hadrons and QCD (Osaka and Kyoto, Japan, October 12-16, 1998).